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Appeal Brief
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PATENT
0425-0774P

IN THE U.S. PATENT AND TRADEMARK OFFICE

In re application of

Before the Board of Appeals

Yo YAMATO

Appeal No.:

Appl. No.: 09/530,184

Group: 3641

Filed: April 26, 2000

Examiner: Aileen FELTON

Conf. No.: 2167

For: GAS GENERATING COMPOSITION

A P P E A L B R I E F

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BRIEF ON APPEAL

Assistant Commissioner for Patents
Washington, D.C. 20231

April 11, 2003

Sir:

This is an appeal from the Final Rejection that was mailed on July 12, 2002.

(1) Real party in interest.

The real party in interest in this appeal is the assignee, Daicel Chemical Industries, Ltd.

(2) Related appeals and interferences.

There are no related appeals or interferences.

(3) Status of claims.

Claims 1 and 4-8 stand rejected. Claim 10 is withdrawn from consideration. Claims 2, 3, and 9 have been cancelled.

(4) Status of Amendments.

An Amendment under 37 CFR 1.116 was filed on January 13, 2003. The Examiner kindly indicated, in an Advisory Action mailed on February 11, 2003, that the Amendment will be entered.

(5) Summary of invention.

The present invention relates to air bag systems of the type used in automobiles to protect occupants from injury in the case of collision. Such air bags operate by means of the combustion of gas generating compositions located within the bags. Residues are generated by the combustion of the gas generating compositions. The combustion residues can cause problems, including burning holes in the air bag, inducing fits in asthmatic automobile occupants, and obstructing the automobile driver's vision. Specification, paragraph bridging pages 1-2. The present invention provides a gas generating composition that is characterized by a reduced amount of combustion residue. Specification, page 2, last paragraph. Specifically, this invention provides a gas generating composition comprising a fuel made of nitroguanidine, guanidine nitrate, or a mixture thereof, an ammonium perchlorate oxidizing agent, and a chlorine neutralizer. Claim 1. This invention also provides an air bag inflator system which makes use of such gas generating compositions. Claim 8.

(6) Issues.

The sole issue in this case is whether claims 1, 4-8, and 10 are properly rejected under 35 U.S.C. §103(a) as being unpatentable over US 6,224,099 (Nielson).

(7) Grouping of claims.

For the purposes of this appeal, claims 1, 4-8, and 10 may be considered to stand or fall together.

(8) Argument.

Claims 1 and 4-8 were rejected as being unpatentable over Nielson. The rejection is respectfully traversed.

No *prima facie* (structural) obviousness

The present invention comprises a synergistic combination of a fuel with an ammonium perchlorate oxidizing agent and a chlorine neutralizer. The compositions of the present invention differ significantly from the compositions that are specifically disclosed in Nielson's Examples. Nielson fails to demonstrate the use of ammonium perchlorate or of an additive such as the chlorine neutralizer.

In support of the rejection, the Examiner states that in columns 6 and 7 of the Nielson patent, "a composition is disclosed that contains ammonium perchlorate, guanidine nitrate, sodium carbonate and binders". Applicants respectfully disagree. Nielson teaches among other things:

In general, the selected gas generant fuel is combined, in a fuel-effective amount, with an appropriate oxidizing agent to obtain a suitable gas generating composition. ... Inorganic oxidizing agents are generally preferred because they produce a lower flame temperature and an improved filterable slag. Such oxidizers include metal oxides and metal hydroxides. Other oxidizers include a metal nitrate, a metal nitrite, a metal chlorate, a metal perchlorate, a metal peroxide, ammonium nitrate, ammonium perchlorate and the like. The use of metal oxides or hydroxy nitrates or hydroxides as oxidizers is particularly useful.... The oxide and hydroxide oxidizing agents mentioned above can, if desired, be combined with other conventional oxidizers.... The selected gas generant fuel can, if desired, be combined with a relatively cool burning

compound, which itself may be a fuel and/or oxidizer. In these compositions, another separate secondary oxidizer may, if desired, be dispensed with. Exemplary relatively cool burning compounds include guanidine nitrate, triamino guanidine nitrate, aminoguanadine nitrate, and urea, among others. ... The gas generant compositions which can be used in combination with an igniter stick or other ignition grain can also include additives conventionally used in gas generating compositions, propellants, and explosives, such as binders, burn rate modifiers, slag formers, chelating agents, release agents, and additives which effectively remove NO_x. Typical burn rate modifiers include Fe₂O₃, K₂B₁₂H₁₂, Bi₂MoO₆, and graphite carbon fibers. A number of additives and/or agents are also known to reduce or eliminate the oxides of nitrogen from the combustion products of a gas generant composition, including alkali metal salts and complexes of tetrazole, aminotetrazoles, triazoles and related nitrogen heterocycles of which potassium aminotetrazole, sodium carbonate and potassium carbonate are exemplary. The composition can also include materials which facilitate the release of the composition from a mold such as graphite, molybdenum sulfide, or boron nitride.

The Examiner is respectfully requested to point out how these generic teachings disclose "a composition" that contains ammonium perchlorate, guanidine nitrate, and sodium carbonate.

Burden of proof

The Examiner's attention is respectfully directed to the decision of the Court of Appeals for the Federal Circuit in *In re Kotzab*, 55 USPQ 131. In that case, like the present one, claims were rejected over different items selected from within a single reference. The CAFC said that the PTO had fallen into "the hindsight trap" and located within the reference statements that conjecturally could be put together to suggest the claimed invention. But, the Court pointed out, there was no finding as to the specific understanding or principle within the knowledge of a skilled artisan that would have motivated one with no knowledge of Kotzab's invention to make the combination in the manner claimed. The Court held that the PTO had not made out a proper *prima facie*

case of obviousness. It is respectfully submitted that in the present situation, the Examiner's reading of the Nielson reference is based purely upon Applicant's disclosure, and that the Examiner has failed to demonstrate facts that would have motivated a person of ordinary skill in the art with no knowledge of Applicant's invention to select the embodiments recited by the Examiner from the extensive disclosure in the Nielson reference.

"[T]he examiner bears the initial burden, on review of the prior art or on any other ground, of presenting a *prima facie* case of unpatentability." *In re Oetiker*, 24 USPQ2d 1443. "Where the legal conclusion [of obviousness] is not supported by [the] facts[,] it cannot stand." *In re Warner*, 154 USPQ 173. In positing the present rejection, the Examiner has not met her burden of proof.

Unexpected properties

Moreover, the compositions of the present invention act synergistically to provide an unexpected, beneficial reduction in the level of combustion residues while at the same time providing enhanced gas production efficiency. Attention is directed to Table 1 on page 12 of the specification, wherein Examples 8-14 (NH_4ClO_4 compositions) left combustion residue amounts ranging from 3.2-7.6 g/mol. This is significantly lower than the combustion residues left by Comparative Examples 1-3 (compositions not containing NH_4ClO_4), for which the combustion residue amounts range from 14.2-44.5 g/mol. Nothing in the Nielson reference teaches or suggests how this combination of properties could be achieved.

Conclusion

The rejection of record is not sustainable.

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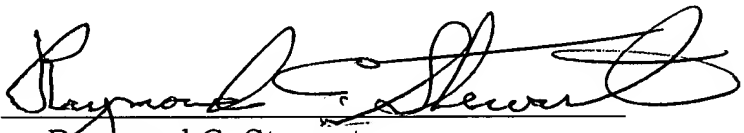
The required Appeal Brief fee in the amount of \$320.00 is attached hereto.

Pursuant to the provisions of 37 C.F.R. §§ 1.17 and 1.136(a), the Appellant hereby petitions for an extension of one (1) month to April 13, 2003, in which to file an Appeal Brief. The required fee of \$110.00 is enclosed herewith.

If there are any questions concerning this application, the Examiner or the Board is requested to contact Richard Gallagher, Reg. No. 28,781, at (703) 205-8008.

Respectfully submitted,

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RF
RCS/RG:gml
Attachment: Appendix (claims on appeal)

(9) Appendix (claims on appeal).

1. A gas generating composition comprising
a fuel made of nitroguanidine, guanidine nitrate, or a mixture thereof,
an ammonium perchlorate oxidizing agent, and
a chlorine neutralizer.
4. The gas generating composition of claim 1, wherein the chlorine neutralizer is a compound containing a cation selected from the group consisting of alkali metals and alkaline earth metals.
10. The gas generating composition of claim 1, wherein the chlorine neutralizer is selected from the group consisting of a silicic acid salt, an oxalic acid salt, an oxide, a peroxide, a cellulose salt, a salt of tetrazole, a salt of triazole, and a salt of bitetrazole.
5. The gas generating composition of claim 1, wherein the content of the fuel is between 35 and 80% by weight, and the content of the oxidizing agent is between 65 and 20% by weight.
6. The gas generating composition of claim 1, which further comprises a binder or a combustion catalyst as an additive.
7. The gas generating composition of claim 1, wherein an amount of a combustion residue based on an amount of a gas generated is 12 g/mol or less.

8. An inflator system using the gas generating composition of claim 1.